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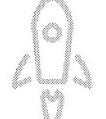
Chatbot Experiment Overview

CARM Innovation Program

DRAFT

INTRODUCTION

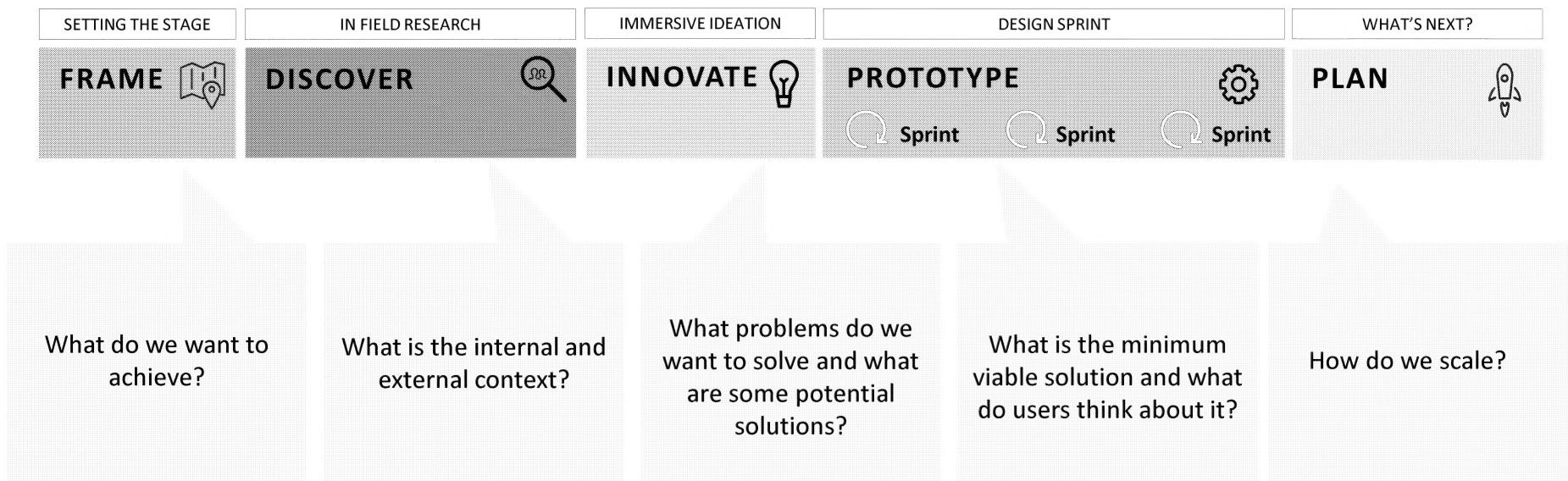
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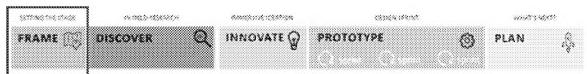
A Reminder of our Approach

A REMINDER OF OUR APPROACH

We used our five-step experimentation process to explore this opportunity



Frame the Objective



FRAME THE OBJECTIVE

CBSA spends significant time liaising with trade chain partners (TCPs) on FAQ-type and account-related questions, resulting in lost productivity and a poor experience

TCPs don't know where to go to get their questions answered and have to interact with multiple groups to get answers to common questions

TCPs spend a lot of time enquiring about the importation process and managing their accounts

CBSA spends significant resources addressing TCP enquiries

These are the problems we're trying to solve

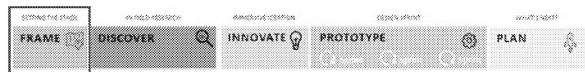
Importers and brokers

Focus on high volume, low complexity enquiries

Enable TCPs to get answers to their questions easily and quickly

Improving the importer and broker experience and reducing the volume of calls and emails to CBSA

This is the objective of the experiment



FRAME THE OBJECTIVE

TCPs don't know where to go to get their questions answered and have to interact with multiple groups to get answers to common questions

When TCPs have a question, they have various CBSA contact options...

Border Information Service (BIS)

Provides general information on CBSA programs to external clients

Contact us Border Information Service

The Border Information Service (BIS) is an automated telephone service that answers incoming calls and provides general information on CBSA programs, services and initiatives through recorded scripts.

Service in English or French

Cells within Canada	Cells outside Canada	TTY within Canada
Toll-free 1-800-461-9999	Long distance charges apply 1-204-983-3500 1-506-636-5084	For those with hearing or speech impairments 1-866-335-3237

Total number of BIS commercial calls requiring human interaction:
~235,000

85%
of all
enquiries

Technical Issues with Electronic Statements

For technical issues related to receiving electronic statements, contact the CBSA's Technical Commercial Client Unit (TCCU) by phone at 1-888-957-7224 or by the [TCCU mailbox](#).

Request to Receive Electronic Statements

Non-Account Security importers who wish to receive electronic daily notices or monthly statements of account must request and complete an application by contacting the CBSA's Technical Commercial Client Unit (TCCU) by phone (1-888-957-7224) or by the [TCCU mailbox](#).

Total number of TCCU enquiries:
~28,000

10%
of all
enquiries

Finance and Administrative Systems and Policies (FASP)

Supports trade chain partners on technical issues related to accounts receivable during the import process

General Information

For general information regarding commercial payments and accounting, contact the Border Information Service at 1-800-461-9999.

From outside Canada call 204-983-3500 or 506-636-5064. Long distance charges will apply. Agents are available Monday to Friday (08:00 – 16:00 local time, except holidays).

TTY is also available within Canada at: 1-866-335-3237.

ARL Support Offices

Account Specific Information

For general specific information regarding your account or statement of account, contact the [CARM mailbox](#).

To enhance the process of prioritizing, tracking and resolving ARL related requests, the following standard subject lines are required for emails to the CARM mailbox.

Total number of ARL enquiries:
~13,000

5%*
of all
enquiries

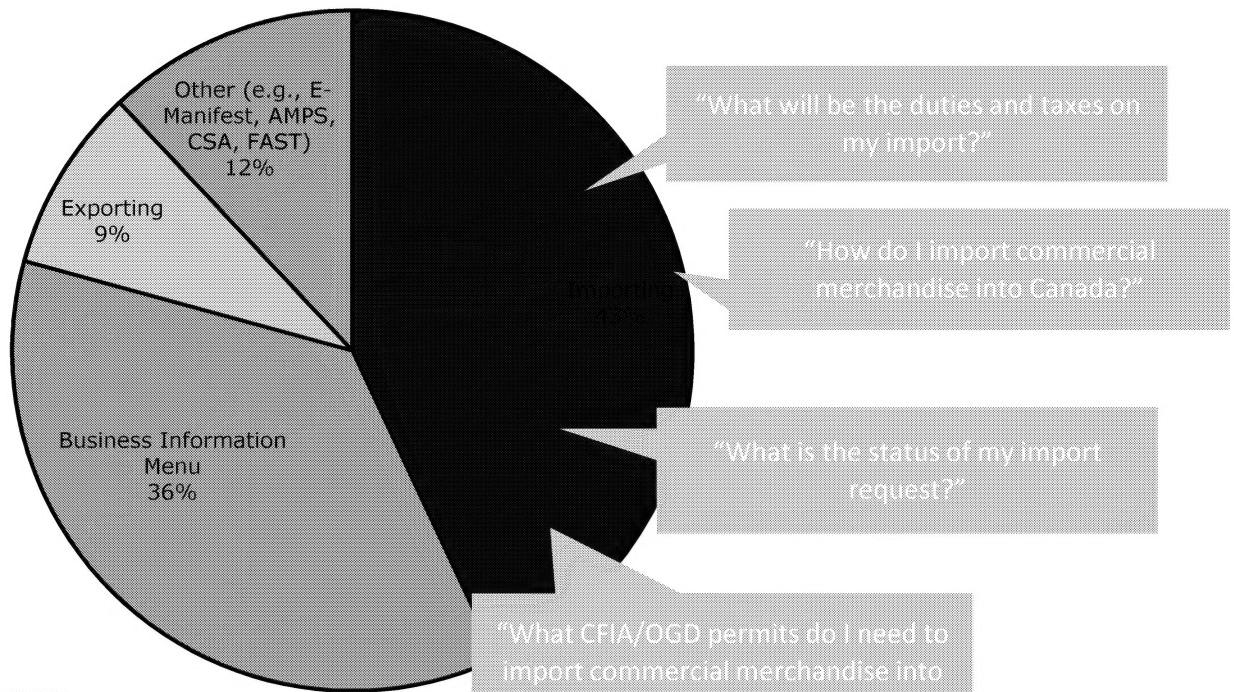
*Represents the total number of commercial enquiries to BIS, TCCU and FASP

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FRAME THE OBJECTIVE

TCPs spend a lot of time inquiring about the importation process and managing their accounts (1/3)

BIS Enquiries (Jan - Dec 2017)

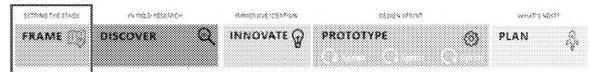


"Nearly 99% of calls are FAQ type questions. If they aren't, they are sent to another team that provides more comprehensive support."

- BIS support team

Total number of BIS commercial enquiries requiring human interaction: ~235,000

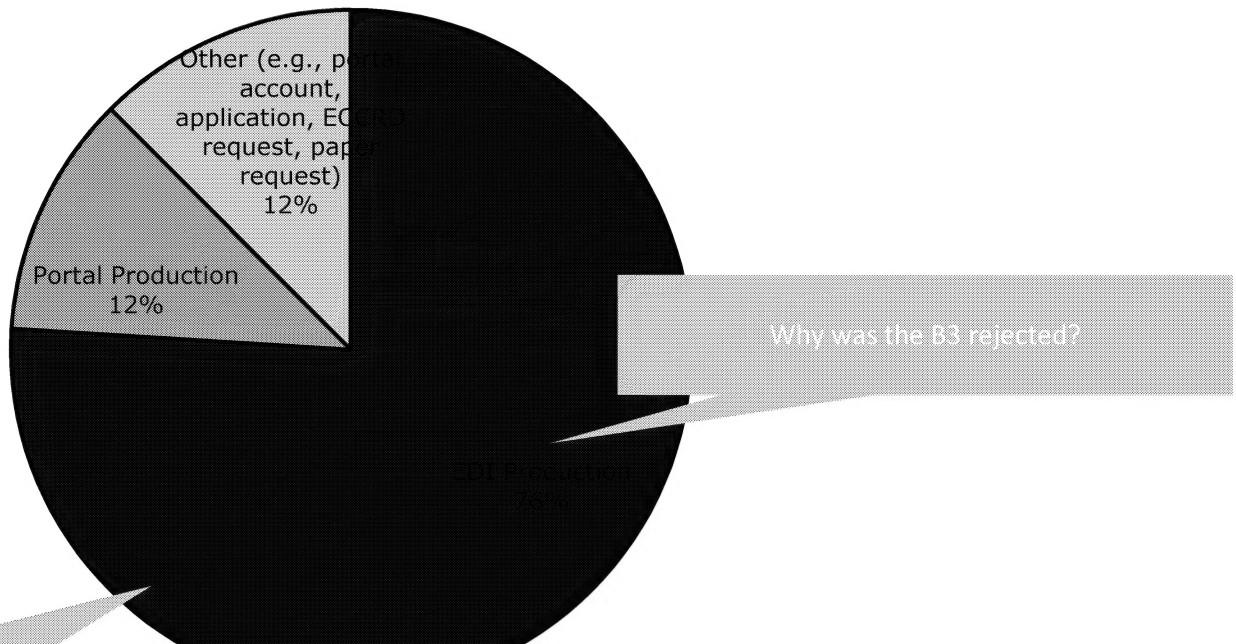
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FRAME THE OBJECTIVE

TCPs spend a lot of time inquiring about the importation process and managing their accounts (2/3)

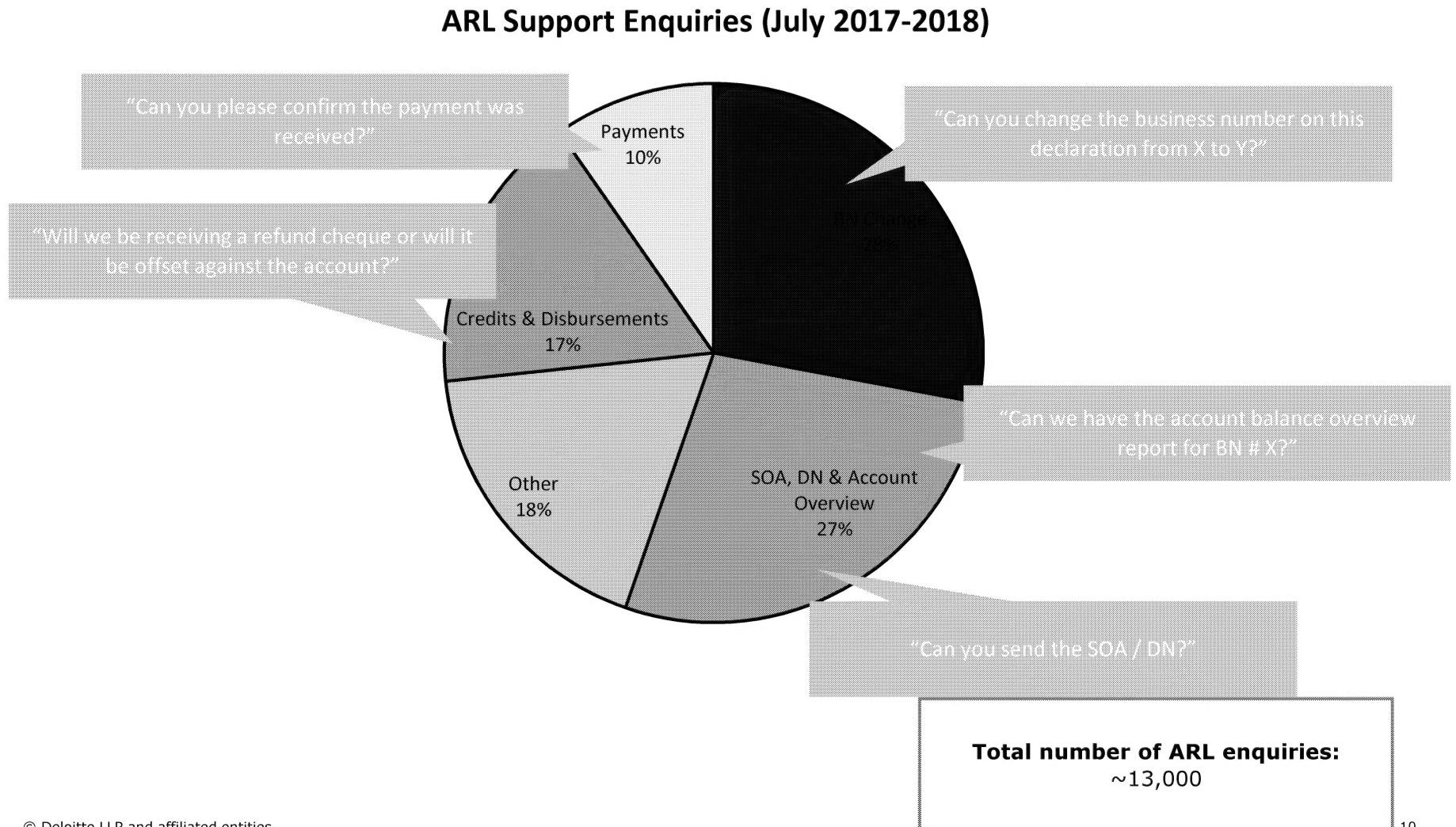
TCCU Enquiries (July 2017 - 2018)



Total number of TCCU enquiries:
~28,000

FRAME THE OBJECTIVE

TCPs spend a lot of time inquiring about the importation process and managing their accounts (3/3)



FRAME THE OBJECTIVE

CBSA spends significant resources addressing stakeholder enquiries

BIS**235,137**

Total number of commercial BIS calls and emails requiring human interaction in the last 12 months

32 FTE

Total FTE handling commercial BIS calls and emails

\$1 - 2M¹

Total possible savings per year

TCCU**27,693**

Total number of TCCU enquiries over the last 12 months

9 FTE

Total FTE handling enquiries in the TCCU group

\$225 – 450K²

Total possible savings per year

FASP**12,859**

Total number of FASP enquiries over the last 12 months

8 FTE

Total FTE handling enquiries in the FASP group

\$200 - 600K³

Total possible savings per year

¹ Estimated BIS savings were calculated based on number of enquiries, minutes of FTE effort spent on calls and FTE salary based on the number of assumed enquiries (high and low) that could be supported by a chatbot (detailed calculations included in Appendix A). ²⁻³ Estimated TCCU and FASP savings were calculated by taking FTE count (and salary) and assuming the percentage of enquiries (high and low) that would be supported by a chatbot since the length of call could not be generalized due to the variety and complexity of enquiries (detailed calculations included in Appendix B and C)

Discover the User



DISCOVER THE USER

Trade chain partners are users of enquiry channels within CBSA, and they are serviced by CBSA client service teams (BIS, TCCU, FASP)

Trade Chain Partners

CBSA
Client Service Teams

Our users

Trade chain partners are focused on understanding the importation process and the transactions being posted to their account(s)

Client service teams spend significant time on high volume, low complexity questions

Key insights from our users

DISCOVER THE USER



TCPs are focused on understanding the importation process and the transactions being posted to their account(s) while client service teams spend significant time on high volume, low complexity questions

General information

TCPs want to know about various aspects of the importation process, such as tariff classification, import accounting, requirements and restriction of importing commercial goods taxes and duties, among others. These questions are in high volume and are often generic and FAQ-type questions.

“What OGD permits do I need to import X commercial items into Canada?”

Status of requests & account info

TCPs want to know about the status of their import requests, forms (e.g., B3 rejects), payments, refunds or help with issues with EDI production and BN mis-entry. TCPs want to be updated on information they've submitted to CBSA for review or action. More transparency for end users would minimize enquiries to CBSA.

“What is the status of my import request?”

Statement of account & daily notice

Many importers are simply looking to understand the status of their account. There is complexity around getting immediate access to their account to track amounts owed and payments due. Greater functionality for end users would allow for faster access to their account information and less enquiries to CBSA.

“We did not receive the statement of account for BN#X. Please advise on the status of the SOA.”

Innovate the Solution

INNOVATE THE SOLUTION

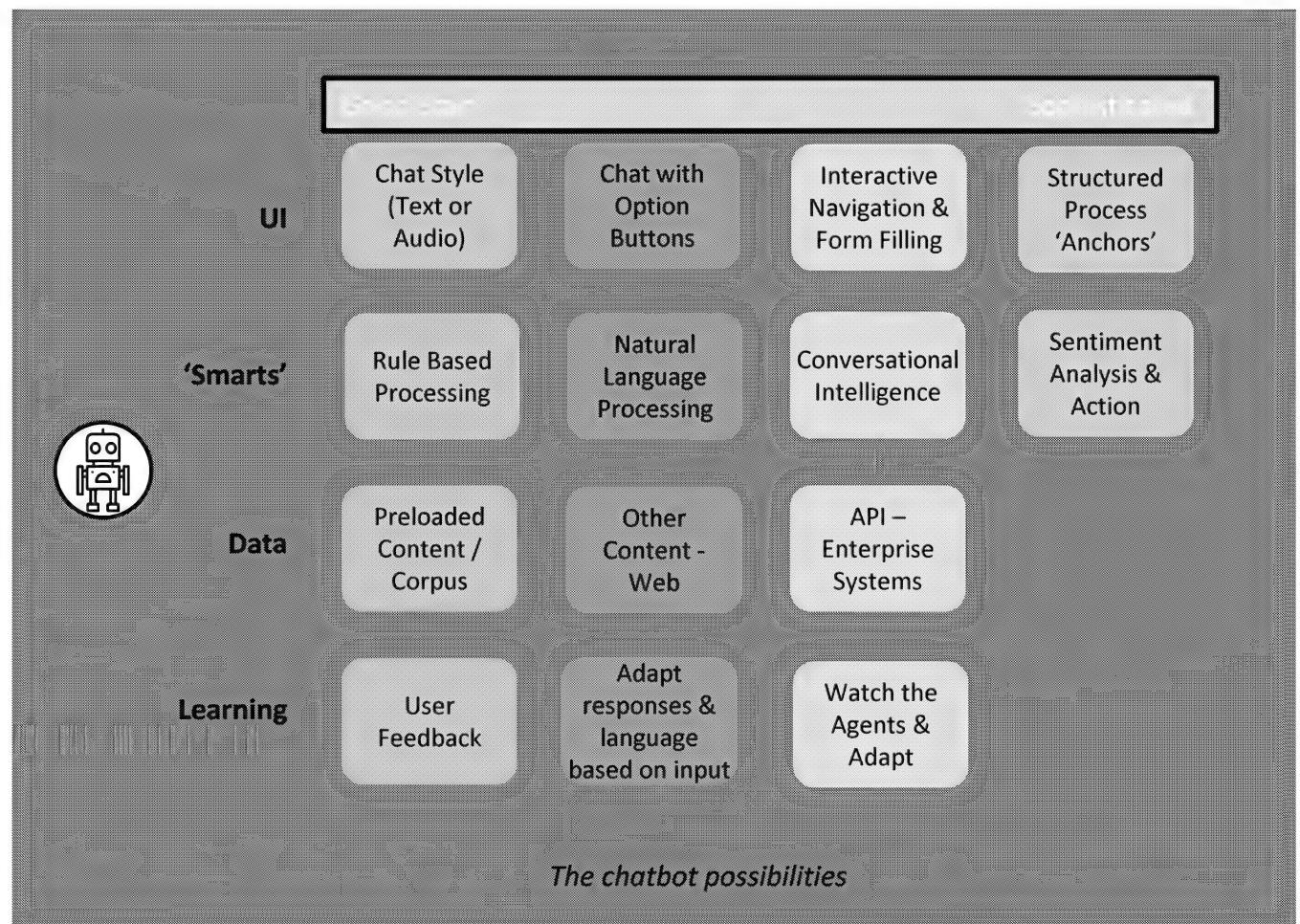
CBSA is interested in exploring the use of a chatbot to reduce call and email volume and to improve user experience

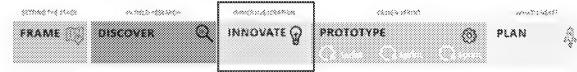
Improve the service experience for trade chain partners

Reduce the amount of time that trade chain partners spend communicating with CBSA

Reduce the workload of CBSA client service teams

Desired outcomes



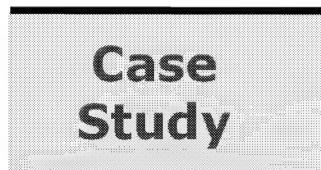


INNOVATE THE SOLUTION

Improve the service experience for trade chain partners

A chatbot results in a better user experience by:

-  Allowing **immediate access** to answers for users
-  Facilitating an easy interaction through **natural language** in both **English and French**.
-  Creating an **integrated user support channels** that allow for seamless transition between agents or teams
-  Providing a **consistent user experience** during each interaction

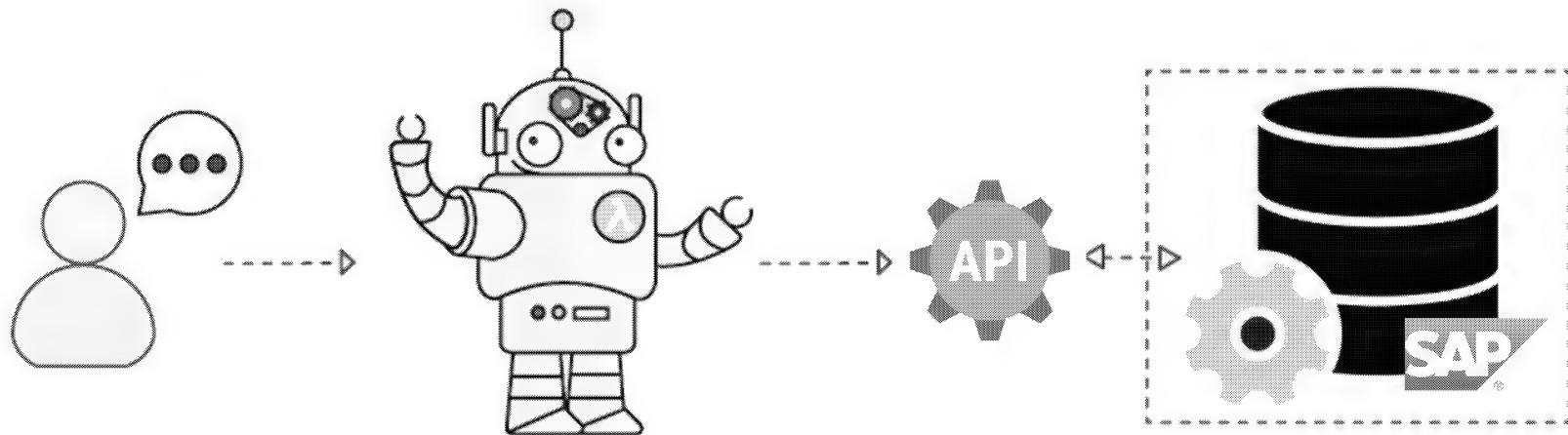


Chatbots allow organizations to better serve users through a user-centric platform that allows them to listen to users and better meet their needs.

85% of client interactions will be managed without a human by 2020

INNOVATE THE SOLUTION

Reduce the amount of time that trade chain partners spend communicating with CBSA



A user converses with the Chatbot to request information or actions.

The Chatbot can understand user requests in natural language. It can reply with answers, perform actions, ask for more inputs, or respond with error handling prompts.

The Chatbot fulfills user requests by triggering web services in SAP via the API. The API then retrieves the requested information or performs other types of actions.

Case Study



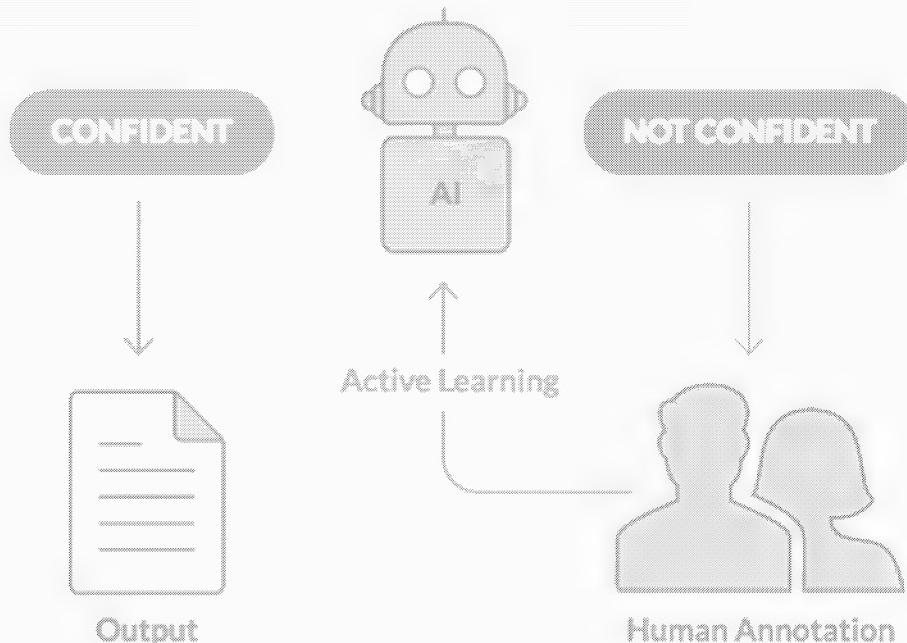
Swedbank introduced a human-like, conversational AI chatbot with self-serve capabilities to respond to user inquiries

78% of customer enquiries were resolved on first contact

INNOVATE THE SOLUTION

Reduce the call & email volume, and know when to escalate to humans for help

A chatbot will help trade chain partners get things done faster than they do today, but there will be times where the request from the end user is not something the bot is capable of handling. In these situations the bot must escalate to a human agent.



Case Study



Bradesco introduced an AI chatbot in 2014 to assist with internal employee queries, and they were diligent in managing, refining and scaling it's response capabilities

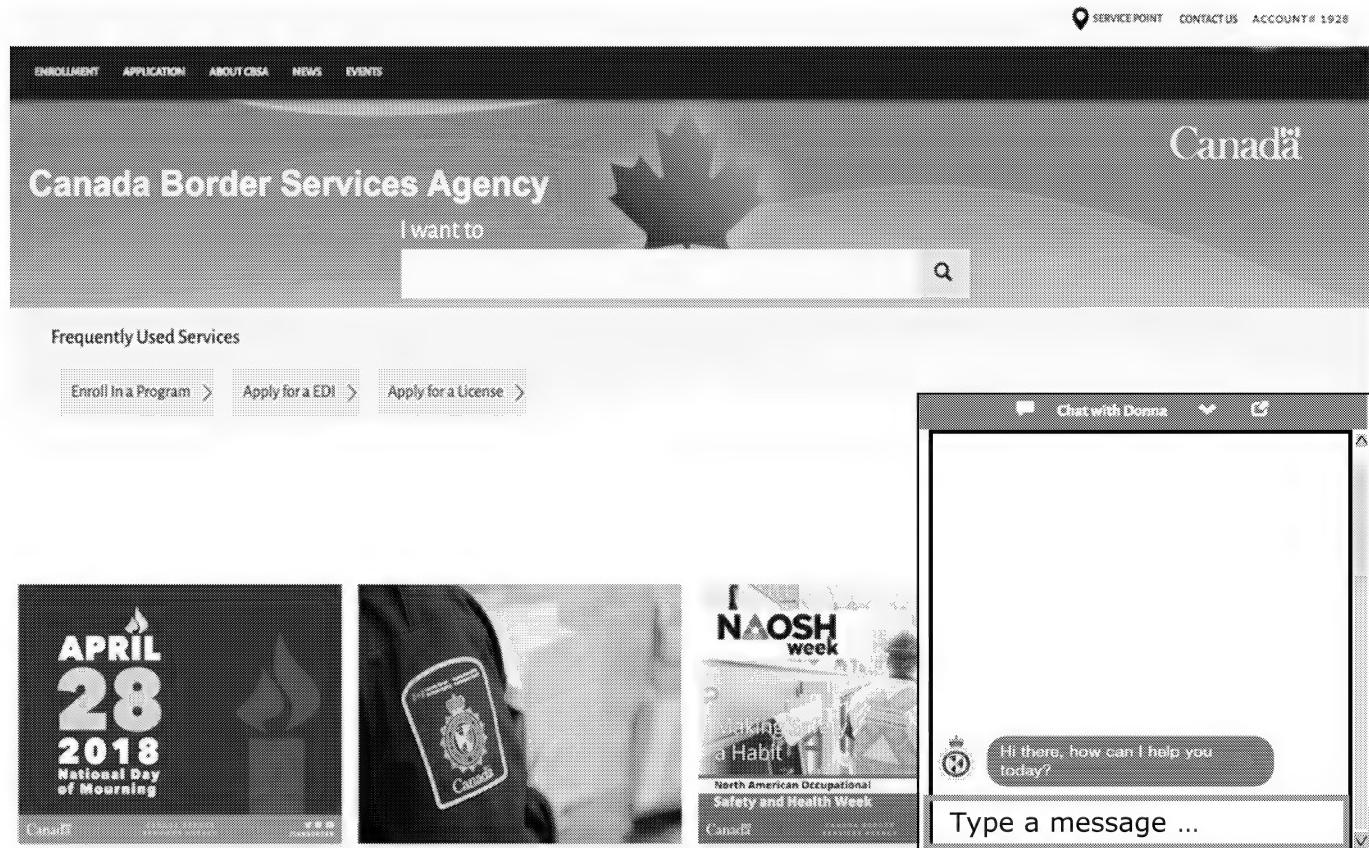
90% of help desk calls were eliminated within 2 years

Prototype the Solution

PROTOTYPE THE SOLUTION

The chatbot solution will build on the currently proposed CARM solution

For the CARM program one of the biggest new capabilities being delivered is an online portal for trade chain partners to interact with. A chatbot would be a **logical extension** of this portal to allow trade chain partners to quickly access disparate information and perform various transactions with the agency **without navigating through pages**.



Illustrative Example (Mocked):

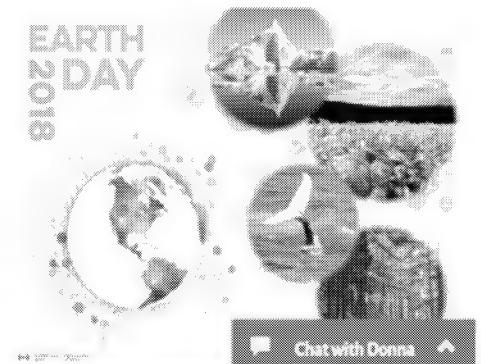
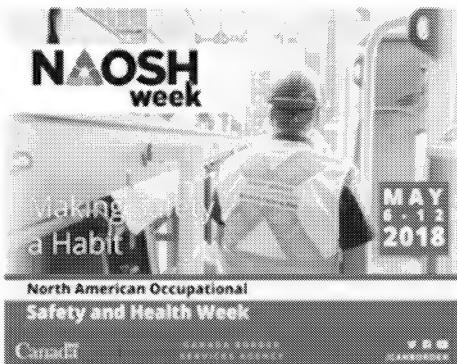
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PROTOTYPE THE SOLUTION



Frequently Used Services

[Enroll in a Program >](#) [Apply for a EDI >](#) [Apply for a License >](#)



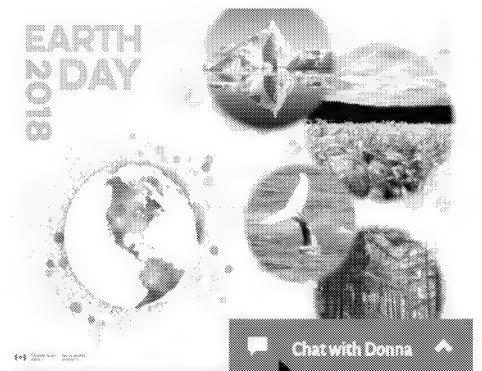
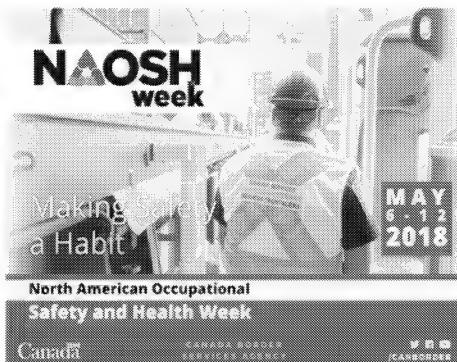
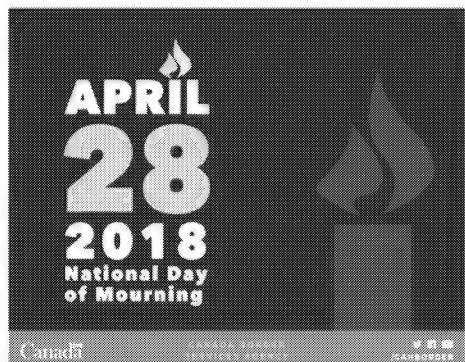
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PROTOTYPE THE SOLUTION

The screenshot shows the CBSA homepage with a dark header bar containing navigation links: ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. In the top right corner, there are links for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER. Below the header, the CBSA logo is displayed with the word "Canada" in red. The main title "Canada Border Services Agency" is prominently shown in white. A search bar with a magnifying glass icon is located below the title. The background features a large, faint image of a Canadian flag.

Frequently Used Services

[Enroll In a Program >](#) [Apply for a EDI >](#) [Apply for a License >](#)



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PROTOTYPE THE SOLUTION

The screenshot shows the CBSA homepage. At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the CBSA logo is displayed with the text "Canada Border Services Agency". A search bar contains the placeholder text "I want to...". Underneath the search bar, there is a section titled "Frequently Used Services" with three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". On the left side of the page, there is a banner for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag. On the right side, there is a photograph of a CBSA officer wearing a uniform with a shoulder patch that includes the word "Canada".

The screenshot shows a prototype of a chat interface. At the top, there is a header with a speech bubble icon, the text "Chat with Donna", and icons for Twitter and Facebook. Below the header is a large input field for typing messages. Inside the input field, the text "Type a message ..." is visible. To the left of the input field, there is a small profile icon of a person with short hair. To the right, there is a vertical scroll bar with arrows at the top and bottom. At the bottom of the interface, there is a footer with the text "Canada", "SEARCH", "CONTACT US", and "SIGN IN / REGISTER".

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PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency (CBSA). At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main header reads "Canada Border Services Agency". A large, semi-transparent overlay box contains the text "I want to" followed by a redacted area. Underneath this, a section titled "Frequently Used Services" lists three options: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom left, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag and a flame. On the right side, there is a small image of a CBSA officer wearing a uniform with a shoulder patch.

The screenshot shows a prototype of a live chat interface. At the top, there is a header with links for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER. To the left of the main chat area, there is a "Chat with Donna" button with a speech bubble icon. The main chat window has a light gray background. A message from the agent "Donna" says "Hi there, how can I help you today?". A message from the user says "I want to bring in a truckload of chicken eggs.". Below the messages, there is a text input field with the placeholder "Type a message ...". At the bottom of the window, there is a footer with links for CANADA, SERVICES, and CONTACT US, along with a "Chat with Donna" button and a small Canadian flag icon.

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PROTOTYPE THE SOLUTION

The screenshot shows the CBSA homepage. At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main heading "Canada Border Services Agency" is displayed in large white letters. Underneath the heading is a search bar with the placeholder text "I want to...". A section titled "Frequently Used Services" follows, featuring three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom left, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a flame icon and the text "National Day of Mourning". On the right side, there is a small image of a person wearing a Canada Border Services uniform with a badge.

The screenshot shows a chat interface. At the top, there is a header with icons for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER, along with a "Chat with Donna" button. The main area of the chat shows a message from the CBSA representative: "Hi there, how can I help you today?". Below this, the user's message is shown in a grey bubble: "I want to bring in a truckload of chicken eggs". The CBSA representative then asks for clarification: "To clarify, what is the country of origin?". At the bottom of the chat window, there is a text input field with the placeholder "Type a message ...". The footer of the page includes links for "Canada", "SAR/RCIA", "SAR/RCIA", "EDS", "EDS", and "Chat with Donna".

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PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency (CBSA). At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main header reads "Canada Border Services Agency". A large, semi-transparent button with the text "I want to" is overlaid on the page. Underneath, a section titled "Frequently Used Services" lists three options: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". On the left side, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag. On the right side, there is a small image of a CBSA officer wearing a uniform with a badge.

The screenshot shows a live chat interface. At the top, there are links for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER. The title of the chat window is "Chat with Donna". The interface includes a message input field with placeholder text "Type a message ...". The conversation log shows the following messages:

- Donna: Hi there, how can I help you today?
- User: I want to bring in a truckload of chicken eggs
- Donna: To clarify, what is the country of origin?
- User: United States

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PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency (CBSA). At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main heading "Canada Border Services Agency" is displayed in large, bold letters. To the right of the heading is a search bar with the placeholder text "I want to...". Underneath the search bar, there is a section titled "Frequently Used Services" containing three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom of the page, there is a banner for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag and a portrait of a person wearing a CBSA uniform with a badge.

The screenshot shows a live chat interface. At the top, there are links for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER. The chat window has a header "Chat with Donna" with icons for a speech bubble, a heart, and a thumbs up. The conversation starts with Donna asking, "Hi there, how can I help you today?". The user responds, "I want to bring in a truckload of chicken eggs." Donna clarifies, "To clarify, what is the country of origin?". The user replies, "United States". Donna then asks, "Thanks, and the destination is Canada?". Below the chat window, there are two options: "YES" and "NO". A text input field at the bottom says "Type a message ...". At the very bottom, there is a footer with links for "Canada", "Contact Us", "Feedback", "Help", and "Chat with Donna".

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PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency (CBSA). At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. The main header features the text "Canada Border Services Agency" and a "I want to" search bar. Below this, there is a section titled "Frequently Used Services" with three buttons: "Enroll in a Program >", "Apply for a EDI >", and "Apply for a License >". A large banner at the bottom left commemorates "APRIL 28 2018 National Day of Mourning" with a Canadian flag and a person wearing a CBSA uniform. The footer contains copyright information for Deloitte LLP and affiliated entities.

The screenshot shows a prototype of a chatbot interface. At the top, there are links for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER. The main area features a conversation with a character named "Chatwith Donna". The dialogue goes as follows:

- Chatwith Donna: Hi there, how can I help you today?
- User: I want to bring in a truckload of chicken eggs.
- Chatwith Donna: To clarify, what is the country of origin?
- User: United States
- Chatwith Donna: Thanks, and the destination is Canada?
- User: YES NO

A cursor arrow points to the "YES" checkbox. At the bottom, there is a text input field labeled "Type a message ...". The footer includes a "Canada" link and a "Chat with Donna" button.

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PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency (CBSA). At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main heading "Canada Border Services Agency" is displayed in large white letters. A sub-headline "I want to" is followed by a search bar. Underneath, a section titled "Frequently Used Services" lists three options: "Enroll In a Program >," "Apply for a EDI >," and "Apply for a License >." On the left side, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag and a flame. On the right side, there is a small image of a CBSA officer wearing a uniform with a badge.

The screenshot shows a live chat interface. At the top, there are icons for a speech bubble, a person, and a gear, followed by the text "Chat with Donna". To the right are links for "SERVICE POINT," "CONTACT US," and "SIGN IN / REGISTER". Below this, a message from Donna asks, "Canada?". The user has two options: "YES" and "NO". The "NO" option is selected, indicated by a checkmark icon. Donna then responds, "Thanks. I'm going to ask you a few questions now to classify the good." Below this, another question is posed: "Please specify the edibleness of the eggs :". The user has two options: "EDIBLE" and "OTHER". The "EDIBLE" option is selected. At the bottom of the chat window, there is a text input field with the placeholder "Type a message ...". The footer of the page includes a "Canada" link, a "SEARCH" button, and a "Chat with Donna" link.

DRAFT

PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency. At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main heading "Canada Border Services Agency" is displayed in large white letters. A sub-headline "I want to" is followed by a search bar. Underneath, a section titled "Frequently Used Services" lists three options: "Enroll In a Program >," "Apply for a EDI >," and "Apply for a License >." On the left side, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a flame icon. On the right side, there is a small image of a CBSA officer wearing a uniform with a badge.

The screenshot shows a live chat interface. At the top, there are icons for a speech bubble, a person, and a gear, followed by the text "Chat with Donna". To the right are links for "SERVICE POINT," "CONTACT US," and "SIGN IN / REGISTER". Below this, a message from "Donna" asks, "Canada?". The user has two options: "YES" and "NO". The "YES" button is highlighted with a dark grey background. The "NO" button is in a standard grey box. The "NO" button is followed by a message from Donna: "Thanks. I'm going to ask you a few questions now to classify the good." Another message from Donna follows: "Please specify the edibleness of the eggs :". The user has two options: "EDIBLE" and "OTHER". The "EDIBLE" button is highlighted with a dark grey background and has a black cursor arrow pointing to it. The "OTHER" button is in a standard grey box. At the bottom, there is a text input field with the placeholder "Type a message ...". The footer of the chat window includes links for "Canada," "SAR/RCIA," "CARIC," "EDI," "Customs," and "Immigration," along with a "Chat with Donna" link and a small Canadian flag icon.

DRAFT

PROTOTYPE THE SOLUTION

The screenshot shows the CBSA homepage. At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the CBSA logo is displayed with the text "Canada Border Services Agency". A search bar contains the placeholder text "I want to...". Underneath the search bar, there is a section titled "Frequently Used Services" with three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". On the left side of the page, there is a banner for "APRIL 28 2018 National Day of Mourning". On the right side, there is a small image of a CBSA officer wearing a uniform with a badge.

The screenshot shows a live chat interface. At the top, there is a header with links for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER. The header also features social media icons for Facebook, Twitter, and YouTube. The main conversation window starts with a message from "Chatwith Donna": "Thanks. I'm going to ask you a few questions now to classify the good." Below this, there is a question: "Please specify the edibleness of the eggs :". Two options are shown: "EDIBLE" and "OTHER". The "EDIBLE" option is highlighted with a grey background. Another question follows: "Please specify the state". Two options are shown: "IN SHELL" and "OTHER". The "OTHER" option is highlighted with a grey background. At the bottom of the window, there is a text input field with the placeholder "Type a message ...". The footer of the chat interface includes a "Canada" link and a "Chat with Donna" button.

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PROTOTYPE THE SOLUTION

The screenshot shows the CBSA homepage. At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the CBSA logo is displayed with the text "Canada Border Services Agency". A search bar contains the placeholder text "I want to...". Underneath the search bar, there is a section titled "Frequently Used Services" with three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom left, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a flame icon and the text "National Day of Mourning". On the right side, there is a small image of a person wearing a Canada Border Services uniform.

The screenshot shows a live chat window titled "Chat with Donna". The interface includes a message input field at the bottom with the placeholder "Type a message ...", a "Canada" button, and a "Chat with Donna" button. Above the input field, there is a message from "Donna" that reads: "Thanks. I'm going to ask you a few questions now to classify the good." Below this, there is a question: "Please specify the edibleness of the eggs :". Two options are shown: "EDIBLE" and "OTHER". The "EDIBLE" option is highlighted with a dark grey background. Below this, another question asks "Please specify the state" with options "IN SHELL" and "OTHER". The "IN SHELL" option is highlighted with a dark grey background and has a cursor arrow pointing to it. To the right of the main window, there are scroll arrows for navigating through the conversation history.

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PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency. At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main header reads "Canada Border Services Agency". A large button labeled "I want to" is centered below the header. Underneath this button, there is a section titled "Frequently Used Services" with three links: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom of the page, there is a banner for the "National Day of Mourning" on April 28, 2018, featuring a Canadian flag and a portrait of a person wearing a uniform with a crest.

The screenshot shows a live chat interface. At the top, there is a header with icons for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER. Below the header, the text "Chat with Donna" is displayed. The message content area has a title "IN SHELL" and a category "OTHER". The message text reads: "Thank you. The HS Code you should use for this is 0407.00. Please also note that since this is a food item that it may have special requirements or permits that need to be satisfied before importation. For more information please visit the Canadian Food Inspection Agency (CFIA)." Below the message, there is a link "VISIT CFIA WEBSITE". At the bottom of the message area, there is a placeholder text "Type a message ...". The footer of the chat interface includes a "Canada" logo and a "Chat with Donna" button.

DRAFT

PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency. At the top, there's a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation, the main heading "Canada Border Services Agency" is displayed in large white letters against a dark background. A search bar with the placeholder "I want to..." is positioned below the heading. Underneath the search bar, there's a section titled "Frequently Used Services" with three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom left, there's a graphic for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag and a torch. On the right side, there's a small image of a person wearing a Canada Border Services uniform.

The screenshot shows a chatbot interface. At the top, there's a header with icons for SERVICE POINT, CONTACT US, and SIGN IN / REGISTER, along with a "Chat with Donna" button. Below the header, a message from the bot reads: "is a food item that it may have special requirements or permits that need to be satisfied before importation. For more information please visit the Canadian Food Inspection Agency (CFIA)." To the right of this message is a "VISIT CFIA WEBSITE" button. Below the message, the bot asks, "Is there anything else I can help you with today?". At the bottom, there are two buttons: "YES" on the right and "NO" on the left. A text input field at the bottom says "Type a message ...". The footer of the chatbot interface includes links for "Canada", "CONTACT US", "SIGN IN / REGISTER", and "Chat with Donna".

DRAFT

PROTOTYPE THE SOLUTION

The screenshot shows the homepage of the Canada Border Services Agency. At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main heading is "Canada Border Services Agency". A large button labeled "I want to" is centered below the heading. Underneath this button, there is a section titled "Frequently Used Services" with three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom left, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag and a torch. On the right side, there is a small image of a person wearing a Canada Border Services uniform.

The screenshot shows a live chat interface. At the top, there is a header with "Chat with Donna" and icons for a speech bubble, a heart, and a thumbs up. Below the header, there is a message from Donna: "is a food item that it may have special requirements or permits that need to be satisfied before importation. For more information please visit the Canadian Food Inspection Agency (CFIA)." To the right of this message is a "VISIT CFIA WEBSITE" link with a magnifying glass icon. Below the message, there is a question: "Is there anything else I can help you with today?". At the bottom, there are two buttons: "YES" on the left and "NO" on the right, with a cursor pointing towards the "NO" button. A text input field at the bottom says "Type a message ...". At the very bottom, there is a footer with links for "Canada", "SAR/CLASSEUR", "EDI", "CONTACT US", and "SIGN IN / REGISTER".

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PROTOTYPE THE SOLUTION

The screenshot shows the official website of the Canada Border Services Agency (CBSA). At the top, there is a navigation bar with links for ENROLLMENT, APPLICATION, ABOUT CBSA, NEWS, and EVENTS. Below the navigation bar, the main heading "Canada Border Services Agency" is displayed in large, bold letters. To the right of the heading is a search bar with the placeholder text "I want to...". Underneath the search bar, there is a section titled "Frequently Used Services" with three buttons: "Enroll In a Program >", "Apply for a EDI >", and "Apply for a License >". At the bottom left, there is a graphic for "APRIL 28 2018 National Day of Mourning" featuring a Canadian flag and a torch. On the right side, there is a small image of a CBSA officer wearing a uniform with a peaked cap.

The screenshot shows a live chat interface. At the top, there is a header with a profile picture, the name "Chat with Donna", and social media icons for Twitter and Facebook. Below the header, there is a message from Donna: "special requirements or permits that need to be satisfied before importation. For more information please visit the Canadian Food Inspection Agency (CFIA)." To the right of this message is a button labeled "VISIT CFIA WEBSITE". Below this, there is another message from Donna: "Is there anything else I can help you with today?". At the bottom of the chat window, there are two buttons: "YES" on the right and "NO" on the left. Below the "NO" button, there is a message from Donna: "Have a nice day!". At the very bottom of the screen, there is a text input field with the placeholder text "Type a message ...".

Prototype the Solution

Beyond the Proof of Concept

PROTOTYPE THE SOLUTION

A chatbot would support and integrate into the CARM solution in a number of ways, including enabling expedited transactions

The list below provides some example tasks a chatbot could be configured to help users with when accounts are authenticated or non-authenticated (i.e., FAQ-type questions):

General importation questions:

What is the status of the custom ruling on Buffalo Jerky?

What HS code do I use to classify an electric toothbrush?

How do I register as an importer?

What will the taxes & duties be on my goods?

Where do I go to get help with EDI?

Account specific questions:

I need to change the BN on a client declaration.

I want to appeal an AMP that was posted onto my account.

What's the status on my SOA?

What's the status on my refund I requested?

Can you confirm you received the payment?

PROTOTYPE THE SOLUTION

A chatbot could interact directly with trade chain partners through their mobile devices

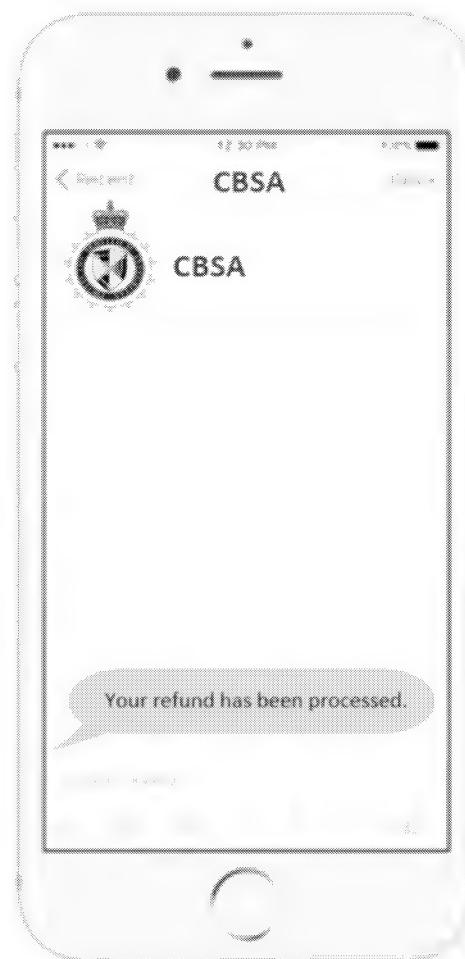
Along with integrating into the CARM portal, a chatbot could interact with trade chain partners directly through their mobile devices for instant access while on the go and provide **push notifications** from CARM to trade chain partners.

Your refund has been processed.

Your account has been penalized due to late payment.

Your declaration could not be processed.

You are approaching your security limit.



PROTOTYPE THE SOLUTION

A chatbot can be deployed across several different platforms in order to best meet importer/ broker needs

Chatbots will be used more when they are made available in as many places as possible. With minimal deployment effort the same bot can live in many different platforms at the same time.



Plan for Launch & Scale

PLAN FOR LAUNCH & SCALE



The chatbot proof of concept will demonstrate the value and impact of the solution

In Scope	Out of Scope
<ul style="list-style-type: none"> Setup of 1 non-production environment to host the proof of concept (POC) Creation of mocked data which is based on (masked) production data Configuration of a single scenario used by front line staff into chatbot tool (based on interviews with BIS, TCCU and FASP) Demonstration of chatbot POC to key CARM stakeholders and – provide opportunity to address technical / business related questions that surface from the POC Creation of executive summary to document key findings, outcomes, risks, issues, and next steps 	<ul style="list-style-type: none"> Live integration of the chatbot into the CARM backend. Embedding of chatbot into the conceptual CARM portal.

What is Needed from CBSA?

1 Provide Business Context

Provide background and context around the selected user scenario so that project team can properly train and configure the solution to meet expected results.

2 Participate in Meetings

Delegate key stakeholders to act as participants in workshops / working groups to identify relevant questions to ask the chatbot, confirm user scenarios, and make decisions on behalf of CARM.

3 Support Testing of POC

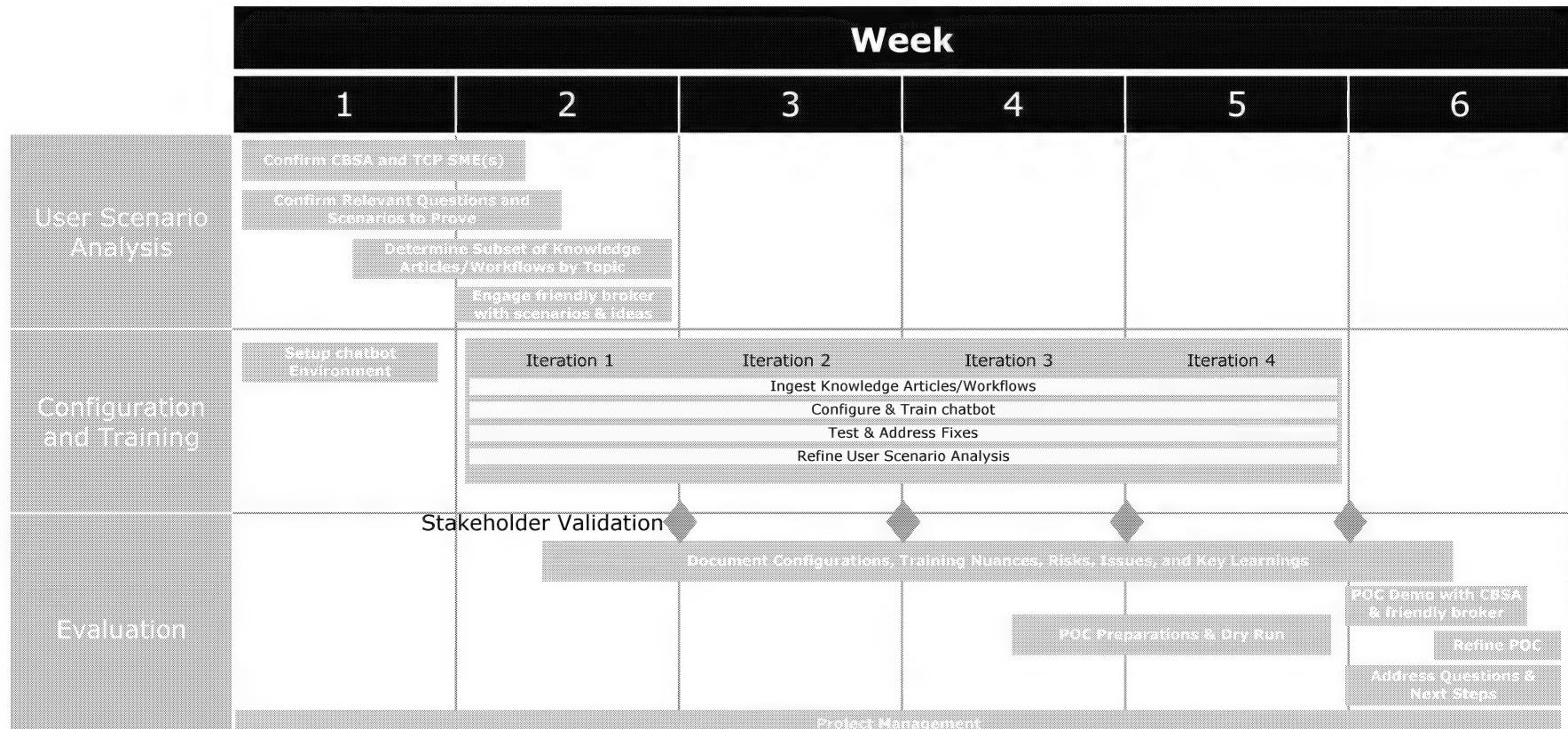
Provide staff to assist with testing the solution from a business end users perspective and identify potential issues / defects to address. Validate the accuracy of various documents being produced.

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PLAN FOR LAUNCH & SCALE

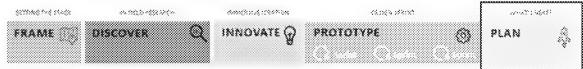
The proof of concept will adopt Agile principles in order to deliver value in a timely manner



Key Deliverables

- Configured and Trained POC Solution for knowledge Articles / Workflows In-Scope
- Documentation of POC User Scenarios / Questions to Prove
- POC Test Cases & Result
- High Level Analysis of Full Implementation Effort and Approach
- Executive Summary for POC Outcomes, Key Findings, and Next Steps

PLAN FOR LAUNCH & SCALE



The benefits of the chatbot are aligned closely with the core CARM mandate

GUIDING PRINCIPLES



Simplify the Commercial Process. Streamline the importation declaration and release processes for legitimate trade, by leveraging new technology and reducing administrative burden at the border



Improve client identity management and commodity identification. Enhance the identification of Trade Chain Partners (TCPs) and imported goods to improve pre-arrival risk assessment and targeting activities

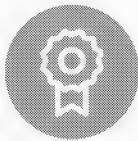
CARM OBJECTIVES

MODERN – A fully digital commercial continuum incorporating self-service functionality for clients



Users can seek information from one source, and inquire about both authenticated and non-authenticated inquiries

TRANSFORMED – A re-engineered, highly efficient business operation enabled by technology



The chatbot will significantly reduce effort required for the three current CBSA contact options (BIS, TCCU, and FASP)

The chatbot will enable TCPs to get answers to their questions quickly and easily

The chatbot will be able to answer authenticated questions, and has potential to be leveraged to improve pre-arrival activities

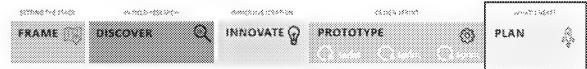
INNOVATIVE – A capability to respond to evolving client and marketplace needs and trends



According to Gartner research, approximately 85% of client interactions will be managed without a human by 2020

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PLAN FOR LAUNCH & SCALE



In order to move the chatbot POC to the next phase, a few key steps need to be completed

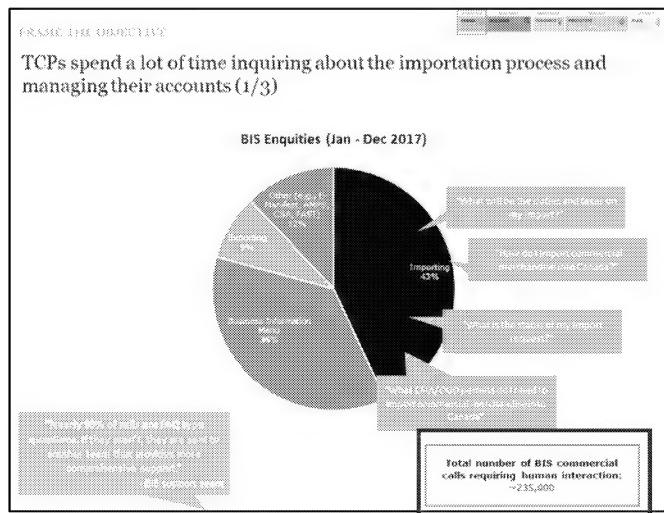
- Gain approval for resources to move forward with POC
- Establish POC team, including relevant CBSA SME(s)
- Confirm relevant questions and scenarios to prove
- Setup chatbot environment

Appendix

Appendix A: Benefit Calculations – BIS

APPENDIX

BIS data (1/4)



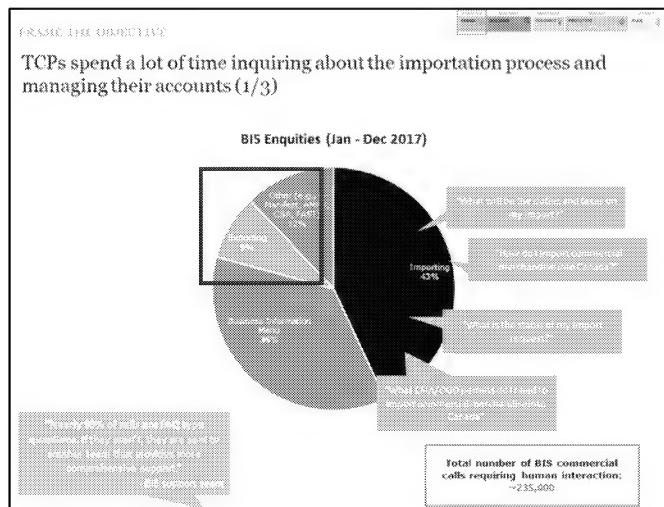
- Based on Suzanne's input on the Workflow Action Activity Report (*WAAS with Summary and Details Jan – Dec 2017 Monthly.pdf*), summarized the number of monthly calls received by BIS for business information (commercial) related inquiries. The summarized data included the total number of calls for each option within the business information menu. Determined that a total number of **340,481** calls were received by BIS for commercial inquiries, between January and December 2017 (note: this 340,481 does not distinguish between calls where human interaction is needed vs not)
- Based on the BIS Phone Monthly Stats file (*BIS Phone Monthly Stats_Fiscal Year 2016 - 2017 2017 - 2018_v3.03.xlsx*), it was determined that BIS received a total of **657,788** in 2017 including both traveler and commercial inquiries
- Based on the above data, it was determined that roughly **50%** of BIS calls are commercial inquiries ($340,481 / 657,788 \approx 50\%$)
- As per the BIS Phone Monthly Stats file, BIS treats a total of **303,336** calls in tier 1, and **79,336** in tier 2. Both require CBSA employees interaction. Assuming that 50% of the tier 1 tickets are commercial, and 90% of tier 2 are commercial (based on a discussion with Suzanne where she mentioned that most tier 2 tickets are commercial), it was determined that BIS treats approximately **151,668** commercial tickets in tier 1, and **71,402** in tier 2 for a total of **223,070** tickets requiring CBSA employees interaction

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APPENDIX

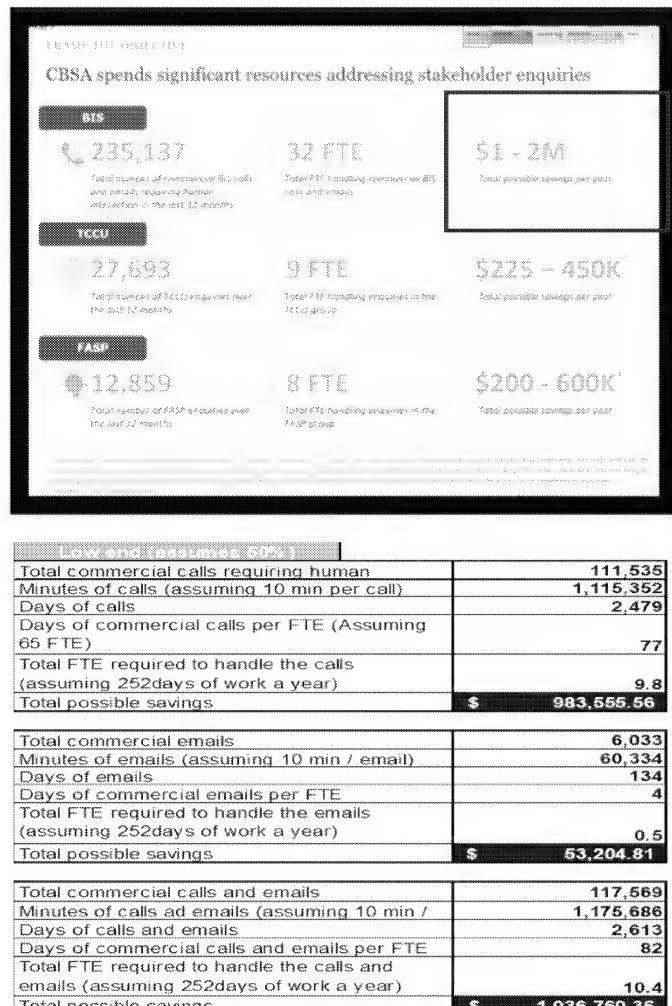
BIS data (2/4)



- The other category includes the following categories (with their related % of total volumes):
 - CSA, FAST, PIP, API/PNR (7.7%)
 - The Administrative Monetary Penalty System (AMPS) (0.5%)
 - Commercial Transporter Obligations (0.6%)
 - eManifest (3.1%)

DRAFT**APPENDIX****BIS data (3/4)**

- Based on the BIS E-Mail Monthly Statistics file (2017-18 BIS E-Mail Monthly Statistics), it was determined that BIS received a total of **22,754** emails in 2017. Assuming that commercial inquires represent **50%** of Tier 1 emails, **90%** of Tier 2 emails and **95%** of HQ emails (% based on conversation with Suzanne), it was determined that a total of **12,067** commercial emails were received by BIS in 2017
- Assuming that **100%** of calls and emails can be answered by a chatbot
 - 235,137** calls and emails are handled yearly
 - 2,351,373** minutes are required to handle the questions (235,137 calls/emails * 10 minutes per call/email). (Assumed 10 minutes per call)
 - 5,225** days are required to handle the questions (2,351,373 minutes / 60 minutes / 7.5 hours of work per day)
 - 163** days are required per FTE to handle the questions (5,225 / 32 FTE) – 65 FTEs is the total FTE (commercial + traveler) based on conversation with Suzanne. Assumed that 50% of them work on commercial questions only
 - 20.7** FTEs are required to handle the questions in total (5,225 days required to handle the questions / 252 working days per year)
 - Potential savings of **\$2,073,520** if **100%** of the calls and emails can be answered by a chatbot

DRAFT**APPENDIX****BIS data (4/4)**

- Assuming that **50%** of calls and emails can be answered by a chatbot
 - 117,569** calls and emails are handled yearly
 - 1,175,686** minutes are required to handle the questions (235,137 calls/emails * 10 minutes per call/email).
 - 2,613** days are required to handle the questions (2,351,373 minutes / 60 minutes / 7.5 hours of work per day)
 - 82** days are required per FTE to handle the questions (5,225 / 32 FTE) – 65 FTEs is the total FTE (commercial + traveler) based on conversation with Suzanne. Assumed that 50% of them work on commercial questions only
 - 10.4** FTEs are required to handle the questions in total (5,225 days required to handle the questions / 252 working days per year)
 - Potential savings of **\$1,036,760** if 50% of the calls and emails can be answered by a chatbot

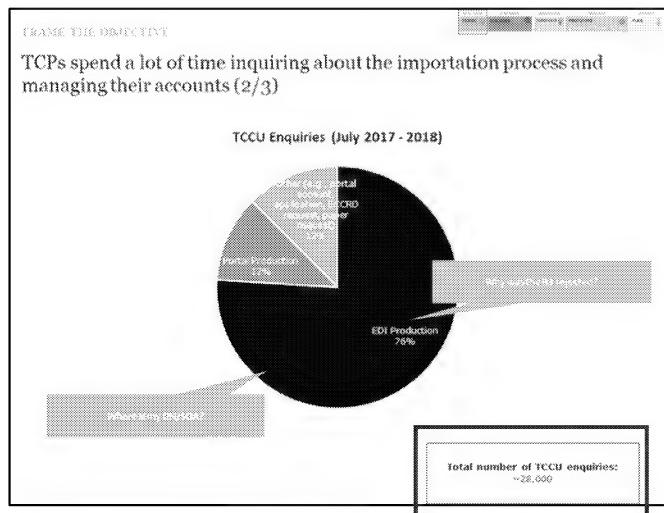
Appendix B: Benefit Calculations – TCCU

DRAFT

APPENDIX



TCCU data (1/2)



- Based on the data provided by Rick Stark, we took the total number of enquiries from the ECU (26,143) and TSU (1,550) teams, which have us **27,693** total enquiries to the TCCU team between July 2017-2018
- The other category includes the following issue categories (with their related % of total volumes):
 - Application (1.6%)
 - Barcode testing (0.4%)
 - Bulletin request (0.2%)
 - Distribution list (1.0%)
 - ECCRD request (1.3%)
 - EDI account (0.9%)
 - Other (2.1%)
 - Outage (0.4%)
 - Paper request (1.3%)
 - Portal account (2.3%)
 - Set aside (0.004%)
 - Testing (.9%)

DRAFT**APPENDIX****TCCU data (2/2)**

- Based on discussions, it was determined that 9 FTEs work in TCCU answering calls / handling tickets
- Assuming that **50%** of calls and emails can be answered by a chatbot
 - 4.5 FTE** time could be fulfilled by a chatbot
 - Assuming an annual salary of **\$100,000**, the total savings by a chatbot is approximately **\$450,000**
- Assuming that **25%** of calls and emails can be answered by a chatbot
 - 2.25 FTE** time could be fulfilled by a chatbot
 - Assuming an annual salary of **\$100,000**, the total savings by a chatbot is approximately **\$225,000**

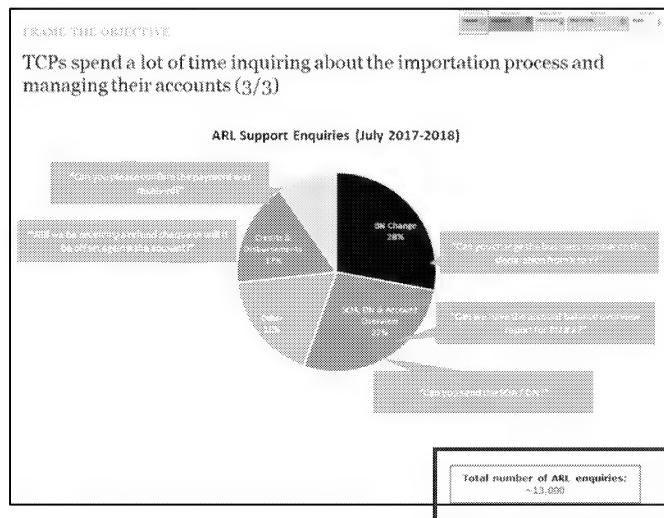
High end (assumes 50%)	
Total number of FTEs	9
% of volume of enquiries that could be replaced by a chatbot	50%
FTE time that could be fulfilled by a chatbot	4.5
Salary of average FTE	\$ 100,000
Total savings by a chatbot	\$ 450,000

High end (assumes 50%)	
Total number of FTEs	9
% of volume of enquiries that could be replaced by a chatbot	25%
FTE time that could be fulfilled by a chatbot	2.25
Salary of average FTE	\$ 100,000
Total savings by a chatbot	\$ 225,000

Appendix C: Benefit Calculations – FASP

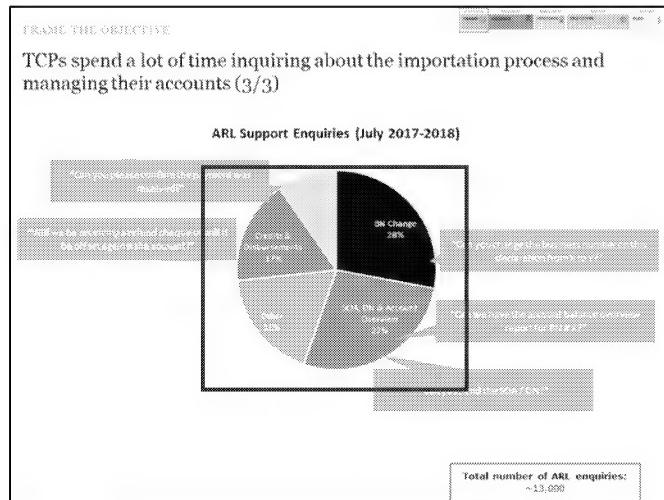
APPENDIX

FASP data (1/3)



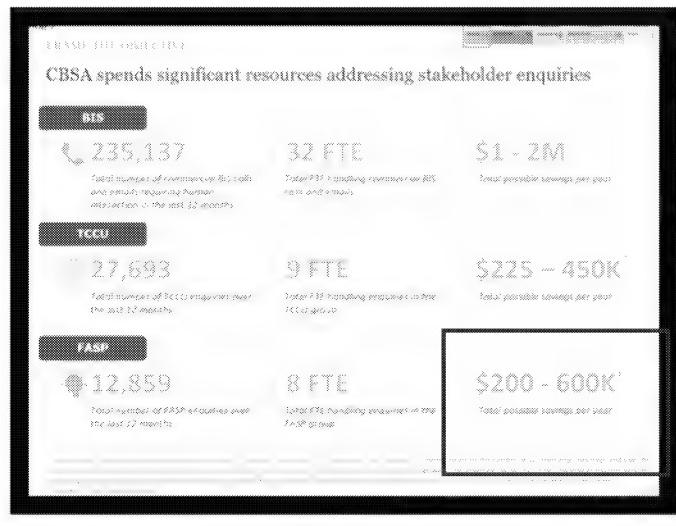
- Total tickets/enquiries were provided by Barbara in a screenshot of a pie chart, providing us with the types of enquiries (FASP labels) and the volume of tickets per label
- KBAs were removed (based on Aran and Barb's recommendations). Note: some of the "other" category may include KBAs, given that we were only provided with the first **39** rows of the table.
- The total from the pie chart components was used as the total number of enquiries (representing the number of labels, assuming this is the number of issues).
- The 'other' row in the raw data is calculated by taking the total from the pie chart, subtracting the KBAs, then subtracting the total of the remaining **29** rows provided.
- "Credit" label FASP label as divided into two (half allocated to each category) to Payment and Credit & Disbursement since we were told by Barb that these enquiries could fall under either
- The original FASP labels were assigned parent labels to bubble up to a higher level – refer to table categorizing

FASP data (2/3)



- The original FASP labels were assigned parent labels to bubble up to a higher level – refer to table categorizing:

Assigned Parent Label	Original FASP Label
BN Change	BN Change
Credits & Disbursements	Disbursement Refund Breakdown Refund Cheque Credit Drawback Cheque_Breakdown Disbursement/Offset
Other	Overdue_Releases Broker_Tag Other
Payments	Payment Correction Cheque Epayment Payments
SOA, DN & Account Overview	Overview Document Status DN_SOA Access SOA Status Password Registration Inquiry Document_Change Missing_Transaction Balance

DRAFT**APPENDIX****FASP data (3/3)**

- 8 FTE working in the FASP group answering enquiries – provided by Barbara and Chris
- Assuming that **75%** of calls and emails can be answered by a chatbot
 - **6 FTE** time could be fulfilled by a chatbot
 - Assuming an annual salary of **\$100,000**, the total savings by a chatbot is approximately **\$600,000**
- Assuming that **25%** of calls and emails can be answered by a chatbot
 - **2 FTE** time could be fulfilled by a chatbot
 - Assuming an annual salary of **\$100,000**, the total savings by a chatbot is approximately **\$200,000**

High end (assumes 75%)	
Total Number of FTEs	8
% of volume of enquiries that could be replaced by a chatbot	75%
FTE time that could be fulfilled by a chatbot	6
Salary of average FTE	100,000.00
Total savings by a chatbot	\$ 600,000

Low end (assumes 25%)	
Total Number of FTEs	8
% of volume of enquiries that could be replaced by a chatbot	25%
FTE time that could be fulfilled by a chatbot	2
Salary of average FTE	100,000.00
Total savings by a chatbot	\$ 200,000

*Please note that the FASP team voiced concerns in terms a chatbot having the ability to answer the types of complex, account specific questions they receive

Helios

AI 4 Leg, Regs, Policies Prototype Tool

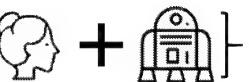
Business Case

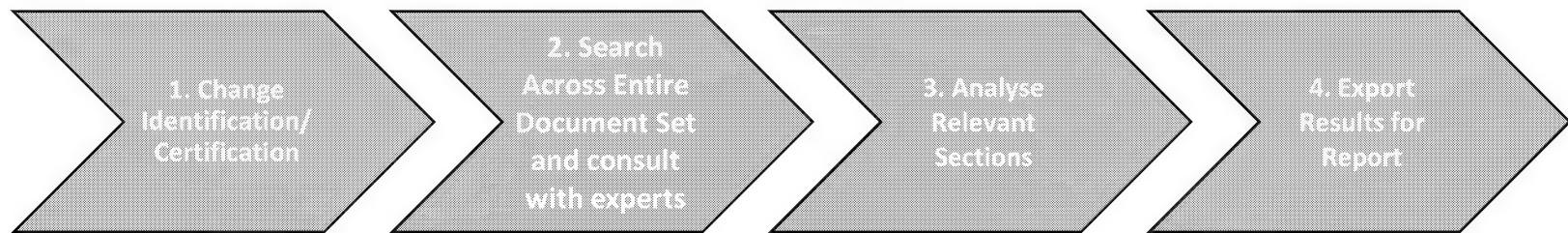
August 2019

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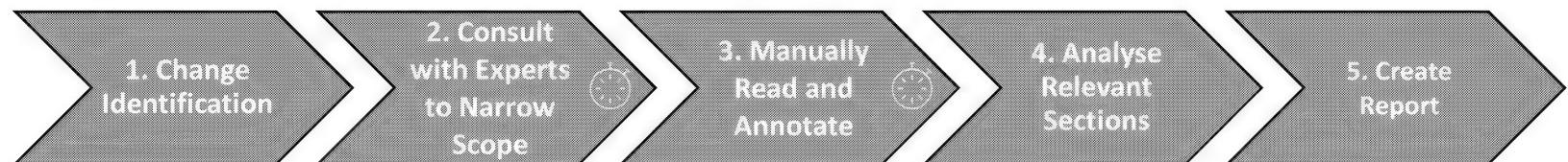
CARM | CBSA Assessment and
Revenue Management

Current vs. AI-powered Workflow

AI-powered []

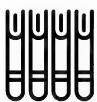


Current []



Business Case

As the AI prototype tool is a new innovation, we will measure its effectiveness across a number of dimension by comparing the current method to an AI-powered method.



AI-POWERED



CURRENT

	# OF DOCUMENTS	TIME SAVED	COMPLETENESS	USABILITY	NEW TOOLS
 AI-POWERED	<ul style="list-style-type: none"> ~750 total documents ingested Instant search across all documents in real time 	<ul style="list-style-type: none"> Advanced search capabilities and time saved An example complex query took 35 minutes for search, analysis, clean, and extraction (multiple keywords overlaid) across entire document set 	<ul style="list-style-type: none"> Higher accuracy, and resulting confidence on initial search results and completeness of analysis Better contextual insights Advanced search capabilities 	<ul style="list-style-type: none"> Simple, easy to use interface Makes policy documents easy to peruse Both textual and visual search available Sharing 	<ul style="list-style-type: none"> Visual Connectivity Graph Thematic Clouds (by topic, by owner) Outdatedness Prescriptivity Readability Faster workflow & collaboration
 CURRENT	<ul style="list-style-type: none"> User based manual or binary search by paper or justice website Scan one document at a time 	<ul style="list-style-type: none"> Search one key word, one document at a time Based on experience, the complex query example would take more than one day to complete (13x more time) Significant time saving of ~ 200 days anticipated based on current usage volume (300 queries/year). See appendix for assumptions 	<ul style="list-style-type: none"> Accuracy based on accuracy of the initial search No contextual insights unless provided by SME No adv. search capabilities. SME's are used to narrow down areas to search 	<ul style="list-style-type: none"> User searches paper, books, or on the Justice website New users would struggle with search capability Search is strictly basic binary search only. 	<ul style="list-style-type: none"> Users would have to custom build new tools using commonly available tools such as MS excel or access. Limited collaboration, typically by paper or by emails

Expected Benefits

 200 days

of time saved on searching tasks per year based on...



300 queries

- Estimated based on current usage volume of 50 queries over 2 months
- 50% simple and 50% complex queries
- 13x to 18x time saving per query based on real life examples



Single user

- Based on today's focused user group of CARM Program Authority
- **Additional benefit** to be realized when rolled out to **broader user base** (e.g., CARM project team, strategic policy branch, etc.)

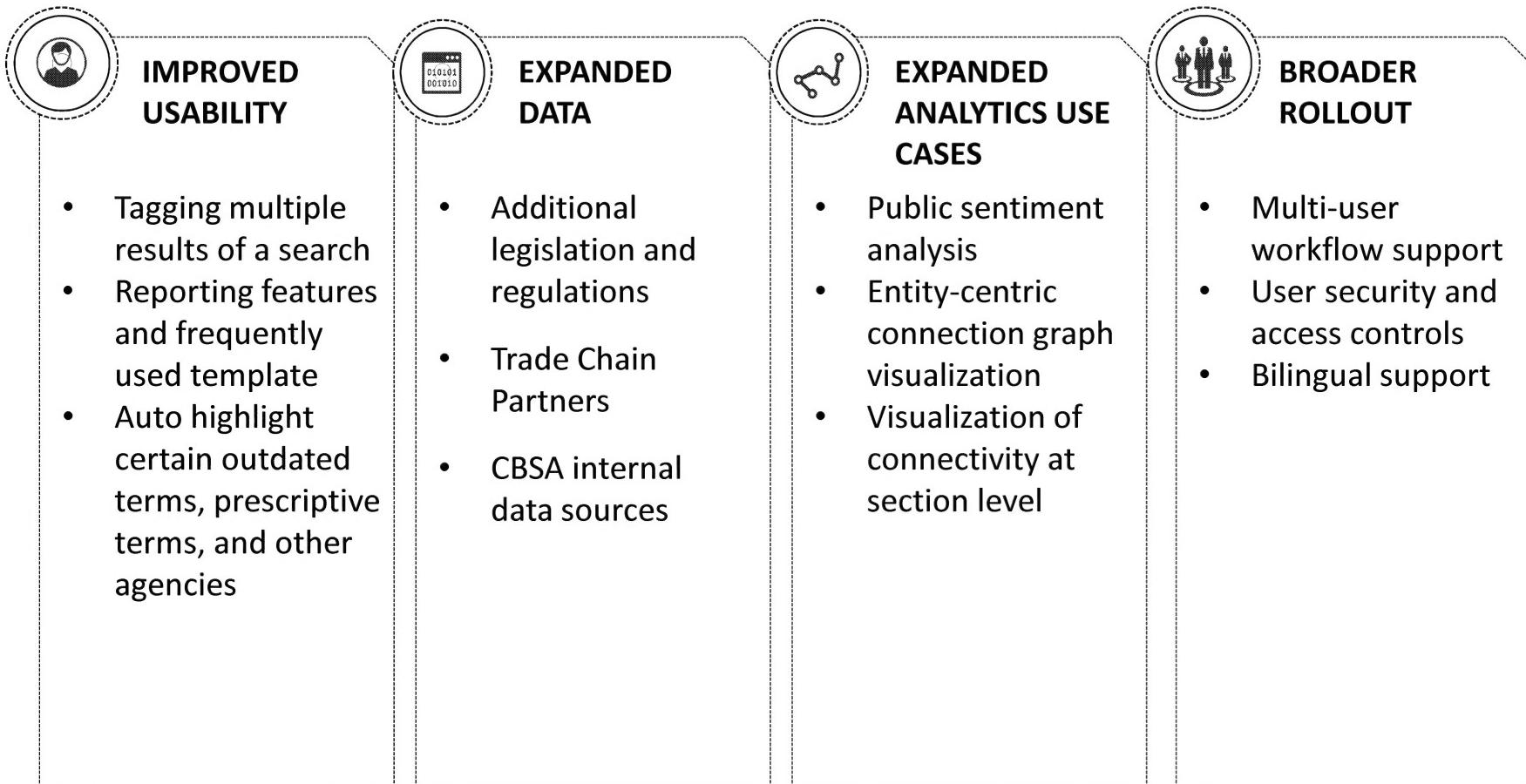


Leg/Regs only

- Based on time it takes to search through legislative and regulatory documents (143 documents in Helios currently)
- **Significant additional benefit** to be realized when d-memos (additional 369 documents), forms, customs notice are considered

... allowing policy analysts to focus on the core, value-added analysis

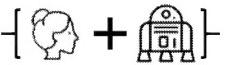
What Could Be Next for Helios?



Discussion

- 1 How would you like to proceed with Helios?
- 2 Would the team like to continue using the tool? Could other areas within CBSA benefit from the tool?

Appendix – Expected Benefits Assumptions

ITEM	 AI-POWERED	 CURRENT
Simple query	10 minutes	3 hours
Complex/ advanced query	35 minutes	> Full day
Annual search volume	<ul style="list-style-type: none"> - Annual search volume of 300 (based on current usage of 50 searches per 2 months) - Assume 150 simple / 150 complex queries 	
Expected time spent on search per year	113 hours (~15 days)	1,575 hours (~210 days)

Example:
"cash" or "cheque"

Example: "accounting"
and "Customs Act" OR
"accounted for" and
"Customs Act"